

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1. (Canceled).

2. (Withdrawn and Currently amended) A disk drive,
comprising: a disk rotating unit which mounts and rotates a disk;
a traverse base which holds said disk rotating unit; a damper
member which flexibly holds said traverse base; a main unit which
holds said traverse base through said damper member; a tray which
mounts a cartridge which houses a disk; and a driving unit which
loads or ejects said tray and accordingly moves said disk in said
cartridge close to or away from said disk rotating unit, wherein
said cartridge is supported by said main unit through said tray
~~The disk drive of claim 1,~~ wherein there is a traverse base
holding member which is moved vertically by said drive relative
to said main unit at the time of tray loading or tray ejection,
and said traverse base is flexibly held by said traverse base
holding member through said damper member.

3. (Withdrawn) The disk drive of claim 2, wherein said
damper member applies a pre-load in a direction which is parallel
to a surface of said traverse base.

4. (Withdrawn and Currently Amended) The disk drive of claim [[1,]] 2 or 3, wherein the resonance frequencies of said damper member in the radius direction of said disk as it is being loaded and in the direction of a rotation shaft are set higher than the maximum rotational frequency of said disk.

5. (Currently amended) ~~The disk drive of claim 1,~~
~~comprising:~~ A disk drive, comprising:

a main unit having a tray on which a cartridge containing a disk is placed and a driving unit which loads or ejects said tray;

a positioning member which inserts said tray, as it is loaded into inside said main unit by said driving means unit, now seating said cartridge into a positioning hole formed in said cartridge, and which accordingly positions said cartridge; and

a cartridge urging member which is provided for said main unit and urges said cartridge against said tray from a direction perpendicular to a disk recording surface of said disk in a condition that said cartridge is positioned by said positioning member; and

a traverse holder which is provided for said main unit and has a disk rotating unit that rotates said disk, said traverse holder being rotatable such that said disk rotating unit moves proximal to, or distal from, said disk when said tray is inserted

into said main unit, wherein:

said cartridge urging member presses said cartridge against said tray, operating cooperatively with said traverse holder which rotates such that said disk rotating unit moves proximal to said disk.

6. (Currently Amended) The disk drive of claim [[1]] 5,
further comprising:

~~a positioning member which inserts said tray, as it is loaded into inside said main unit by said driving means, now seating said cartridge into a positioning hole formed in said cartridge, and which accordingly positions said cartridge;~~

a state detecting means unit which detects a state detecting hole of said cartridge which expresses the states of said cartridge loaded into said main unit and said disk which is inside said cartridge;

a disk clamp member which clamps said disk together with said disk rotating means unit;~~and a cartridge urging member which urges said cartridge against said tray from a direction perpendicular to a disk recording surface of said disk in a condition that said cartridge is positioned by said positioning member.~~

7. (Withdrawn and Currently Amended) The disk drive of claim 5 or 6, further comprising a raising/lowering means unit

which moves said disk rotating means unit, which mounts and rotates a disk, close to said disk, wherein said cartridge urging member is driven by said raising/lowering means unit.

8. (Withdrawn) The disk drive of claim 5, 6 or 7, wherein said cartridge urging member urges said tray in a direction perpendicular to a tray transporting direction, after a naked disk has been loaded into said main unit and when said cartridge is not within said tray.

9. (Withdrawn and Currently Amended) The disk drive of claim 5, 6 or 7, ~~wherein there are~~ further comprising at least one pair of cartridge urging members in a symmetrical arrangement with respect to a cartridge transporting direction, and wherein said cartridge urging members urge at about a central position in a cartridge depth direction.

10. (Withdrawn and Currently Amended) A disk drive, comprising: a disk rotating unit which mounts and rotates a disk; a traverse base which holds said disk rotating unit; a damper member which flexibly holds said traverse base; a main unit which holds said traverse base through said damper member; a tray which mounts a cartridge which houses a disk; and a driving unit which loads or ejects said tray and accordingly moves said disk in said cartridge close to or away from said disk rotating unit, wherein said cartridge is supported by said main unit through said tray,

said disk drive further ~~The disk drive of claim 1,~~ comprising:

a main unit comprising an opening portion for loading or ejecting a disk or a cartridge housing a disk;

a door which is disposed to open and close said opening portion and which is closed with said disk or said cartridge loaded; and

a lock means which prevents opening of said door which is closed.

11. (Withdrawn and Currently Amended) The disk drive of claim 10, wherein said main unit comprises a tray which mounts a disk or cartridge and permits loading or ejection through said opening portion, said lock means engages with said tray, and opening of said door is prevented by means of the loading operation of said tray.

12. (Withdrawn and Currently Amended) The disk drive of claim 10, wherein said main unit comprises a motor and a slide member which moves in accordance with said motor, said lock means engages with said slide member, and opening of said door is prevented by means of operations of said slide member.

13. (Withdrawn and Currently Amended) The disk drive of claim 12, wherein said lock means is integrated with said slide member.

14. (Withdrawn and Currently Amended) The disk drive of

claim [[1,]] 5 or 6, comprising:

~~a mount detecting means~~ detecting unit which detects setting of said cartridge to said tray at a right position with said tray ejected and which outputs a detection signal; and

~~a controlling means~~ control section which receives said detection signal and outputs an operation instruction to said driving means.

15. (Withdrawn and Currently Amended) The disk drive of claim 14, comprising a detecting member which detects setting of a cartridge to a tray at the right position,

wherein said mount detecting means unit responds to a detecting operation of said detecting member.

16. (Withdrawn and Currently Amended) The disk drive of claim 15, comprising ~~a cartridge holding means~~ unit which engages with an engagement receiving part of a cartridge in such a manner that said cartridge holding means unit can be freely detached, positions and fixes a cartridge to a tray,

wherein said cartridge holding means unit also serves as a detecting member.

17. (Withdrawn and Currently Amended) The disk drive of claim [[1,]] 5 or 6, further comprising:

~~a controlling means~~ control section which controls said driving means unit based on a predetermined drive profile in

which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray;

a detecting means unit which detects the completion of loading and ejection by said driving means unit; and

a calculating means calculation section which measures a loading time and an ejection time of said disk by said driving means unit based on a result of the detection performed by said detecting means unit,

wherein said ~~controlling means~~ control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a measured time obtained by said ~~calculating means~~ calculation section.

18. (Withdrawn and Currently Amended) The disk drive of claim 17, further comprising a medium judging means section which judges the shape, the size and the like of said disk, wherein said ~~controlling means~~ control section changes said drive profile by media in accordance with a result of the judgment obtained by said medium judging means section.

19. (Withdrawn) The disk drive of claim 17, further comprising a measuring means section which measures an inside temperature inside said drive, wherein said ~~controlling means~~ control section changes said drive profile by predetermined

temperature in accordance with a result of the measurement regarding said inside temperature.

20. (Withdrawn and Currently Amended) The disk drive of claim 17, 18 or 19, wherein an operation time of said driving means unit is changed by said ~~controlling means~~ control section based on drive processing numbers which are assigned to said drive profile for every inflection point and calculation using a result of the measurement of a loading time and an ejection time calculated by said ~~calculating means~~ calculation section.

21. (Withdrawn and Currently Amended) The disk drive of claim 20, wherein selected as an inflection point is a point at which a disk engages with said holding means unit in said drive profile regarding loading of said disk into said drive.

22. (Withdrawn and Currently Amended) The disk drive of claim 20, wherein selected as an inflection point is a point at which a disk engages with and gets disengaged from said holding means unit in said drive profile regarding ejection of said disk from said drive.

23. (Withdrawn and Currently Amended) The disk drive of claims 17 through 22, wherein said ~~calculating means~~ calculation section sets up a variable as a major drive time in said drive profile, assigns drive processing numbers to said drive profile for every certain period of time, extends an operation time of

said driving means unit when said drive processing number upon detection of an end by said detecting means unit is larger than an optimal number calculated in advance, but shortens the operation time of said driving means unit when said drive processing number upon detection of an end by said detecting means unit is smaller than said optimal number calculated in advance.

24. (Withdrawn and Currently Amended) The disk drive of claim 23, wherein said ~~calculating means~~ calculation section assigns unique values to said drive processing numbers other than said optimal number, and when driving processing ends at said drive processing number, said calculating means adds said unique value unique to said drive processing number to the operation time of said driving means unit.

25. (Withdrawn and Currently Amended) The disk drive of claim 23, wherein said ~~calculating means~~ calculation section multiplies a difference between said drive processing number and said optimal number by a coefficient, and adds to the operation time of said driving means unit.

26. (Withdrawn and currently Amended) The disk drive of claim [[1,]] 5 or 6, comprising:

a controlling means control section which controls said driving means unit based on a predetermined drive profile in

which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray; and

a medium judging means section which judges the shape, the size and the like of said disk,

wherein said ~~controlling means~~ control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a result of the judgment obtained by said medium judging means section.

27. (Withdrawn and Currently Amended) The disk drive of claim [[1,]] 5 or 6, further comprising:

a controlling means control section which controls said driving means unit based on a predetermined drive profile in which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray; and

a measuring means unit which measures an inside temperature inside said drive,

wherein said ~~controlling means~~ control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a result of the measurement regarding said inside temperature.

28. (Currently Amended) The disk drive of claim ~~1, 5 or 6~~,

further comprising a positioning means unit which engages with a said positioning hole of said cartridge in such a manner that said positioning means unit can be freely detached,

wherein said positioning means unit engages with said positioning hole of said cartridge in a condition that said tray has been loaded.

29. (Currently amended) The disk drive of claim 1 6, further comprising a positioning means unit which is held by said main unit in such a manner that said positioning means unit freely engages with and gets detached from a positioning hole of said cartridge,

wherein said positioning means unit engages with said positioning hole of said cartridge in a condition that said tray has been loaded, and

said main unit holds said damper member and said driving means unit, and holds said tray in such a manner that said tray is freely loaded and ejected.

30. (Original) The disk drive of claim 29, wherein said damper member is disposed to said traverse holder, and said traverse holder is held by said main unit.

31. (Currently amended) The disk drive of claim 29, wherein said positioning means unit can engage with and get detached from two positioning holes, one on the left-hand side

and the other on the right-hand side, of said cartridge at one position ~~at lease~~ at least.

32. (Currently amended) The disk drive of claim 29 ~~or 30~~, wherein said positioning means unit is held in such a manner that the position of said positioning means unit can be adjusted in the forward/backward direction relative to said main unit.

33. (Currently Amended) The disk drive of claim 29, further comprising a cam member which vertically drives said traverse base and said positioning means unit,

wherein said traverse base and said positioning means unit share the a same cam mechanism which is disposed to said cam member.

34. (Currently amended) The disk drive of claim 28, 29, 30, 31, 32 or 33, further comprising a guide member which guides vertical driving of said positioning means unit, wherein said guide member has a tapering shape which tapers over multiple steps, and a gap between said positioning means unit and said guide member becomes ~~[[the]]~~ smallest during insertion of said positioning means unit into said positioning hole of said cartridge.

35. (Currently amended) The disk drive of claim 29 5, wherein said cartridge comprises a state detecting hole which expresses the state of said disk housed in said cartridge, a

state detecting means unit is disposed which is held by said main unit in such a manner that said state detecting means unit can engage with and get detached from said state detecting hole, and said positioning means unit and said state detecting means unit ascend in synchronization.

36. (Currently amended) The disk drive of ~~claims 28 through 35~~ of claim 28, 29, 30, 31, 33 or 35, further comprising a second driving means unit which vertically drives said positioning means unit.

37. (Currently amended) The disk drive of claim 36, wherein said second driving means unit stops drive force immediately before engagement of said positioning means unit and said positioning hole of said cartridge completes.

38. (Currently amended) The disk drive of ~~claims 28 through 35~~ of claim 28, 29, 30, 31, 33 or 35, further comprising a traveling restricting means unit which restricts traveling of said state detecting means unit after detachment of said state detecting means unit from said state detecting hole of said cartridge.

39. (Currently amended) The disk drive of ~~claims 36 through 38~~ claim 38, wherein said second driving means unit and said traveling restricting means unit are integrated as one.

40. (Currently amended) The disk drive of ~~claims 28~~

~~through 39~~ of claim 28, 29, 30, 31, 33, 35 or 37, further
comprising a shutter opening/closing means unit which opens a
shutter of said cartridge at the time of loading, wherein said
tray has a position reference for said cartridge in a direction
in which said shutter opening/closing means unit opens said
shutter of said cartridge, and said positioning means unit is
disposed at one position at least.

41. (Currently Amended) The disk drive of claim ~~[[1,]]~~ 5
or 6, comprising a holding means unit which holds said tray
between a loading position and an ejection position in such a
manner that said tray can be transported linearly.

42. (Currently Amended) The disk drive of claim 41,
comprising an opening/closing means unit which opens and closes a
shutter of said cartridge, wherein said tray comprises a
cartridge holding means unit which holds said cartridge.

43. (Currently Amended) The disk drive of claim 42,
wherein said opening/closing means unit is disposed to said tray.

44. (Currently amended) The disk drive of ~~claims 41~~
~~through 43~~ claim 41, wherein said holding means unit comprises a
shaft disposed in the forward/backward direction to said tray and
a shaft bearing disposed to said main unit.

45. (Currently amended) The disk drive of ~~claims 41~~
~~through 43~~ claim 41, wherein said holding means unit comprises a

shaft disposed in the forward/backward direction to said main unit and a shaft bearing disposed to said tray.

46. (Currently Amended) The disk drive of claim [[1,]] 5 or 6, comprising a cartridge holding means unit which restricts movements of said cartridge relative to said tray in the loading/ejection direction and which engages with an engagement receiving part disposed to said cartridge in such a manner that said cartridge holding means unit can be detached from said engagement receiving part.

47. (Original) The disk drive of claim 46, wherein no wall surface which is perpendicular to a cartridge seating surface is disposed at the front edge of said tray in the loading/ejection direction.

48. (Currently amended) The disk drive of claim 46 or ~~47~~, wherein said driving means unit has a structure that as said tray as it is in the ejected state is pushed manually into inside said main unit, driving for loading is started, and force which engages said cartridge with said cartridge holding means unit is smaller than force with which said tray is pushed manually into inside said main unit.

49. (Withdrawn and Currently Amended) The disk drive of claim 46 or ~~47~~, wherein said cartridge holding means unit has such a structure which flexibly engages with an engagement

receiving part of said cartridge, a stopper is disposed at the rear edge of said tray in the loading direction of said cartridge, and during placing of said cartridge on said tray, a placing limit position for said cartridge restricted by said stopper roughly matches with a position at which said cartridge completes engaging with said cartridge holding means unit.

50. (Currently amended) The disk drive of claim 46 or ~~47~~, wherein said cartridge holding means unit is disposed to said tray in such a manner that said cartridge holding means unit can sink in an engagement receiving part of said cartridge which has a concave shape.

51. (Currently amended) The disk drive of claim 46, ~~47~~ or ~~50~~, wherein there are engagement receiving parts on the left-hand side and the right-hand side to an axial line of the loading or ejection direction passing through the center of gravity of said cartridge.

52. (Withdrawn) The disk drive of claim 46, 47 or 50, wherein said engagement receiving part is located on one of the left-hand side and the right-hand side to an axial line of the loading or ejection direction passing through the center of gravity of said tray, or is located on said axial line.

53. (Withdrawn) The disk drive of claim 46, 47, 50, 51 or 52, wherein said tray comprises a guide member which restricts

movements of said cartridge in a direction perpendicular to the loading or ejection direction of said tray.

54. (Withdrawn and currently Amended) The disk drive of claim 46, 47, 50 or 53, wherein in a condition that an engaging part of said cartridge holding means unit is about to engage with said cartridge but is not in engagement, in order to prevent loading of said tray into said main unit, an opening portion disposed in a front surface of said main unit for loading and ejection of said tray interferes with said cartridge holding means.

55. (Currently amended) The disk drive of claim 46, ~~47~~ or ~~50~~, wherein said cartridge holding means unit comprises, on said tray, a revolution shaft which revolves in a direction perpendicular to the loading and ejection direction of said tray and a holding member which has an engaging part which is axially supported by said revolution shaft and engages with said engagement receiving part, and said engaging part of said cartridge holding means unit is pre-loaded in a direction of engagement with said engagement receiving part of said cartridge.

56. (Withdrawn and Currently Amended) The disk drive of claim 46, 47 or 50, wherein said cartridge holding means unit comprises an elastic member which is flexibly deformed in a direction perpendicular to the loading and ejection direction of

said tray, and the front edge of said elastic member is deformed through plastic deformation into a projecting shape which sinks into said engagement receiving part of said cartridge which has a concave shape, or an engaging member having said projecting shape is integrated with said elastic member at the front edge of said elastic member.

57. (Withdrawn and currently Amended) The disk drive of claims claim 46, 47, or 50, wherein in an engaging part of said cartridge holding means unit which sinks into said engagement receiving part of said cartridge which has a concave shape, a roller having a cylindrical or approximately spherical shape is disposed which rotates along a surface of said cartridge and which comprises a rotation shaft in a direction perpendicular to the loading and ejection direction of said tray.

58. (Withdrawn and Currently Amended) A loading method for the disk drive of any one of claims [[1]] 2 through 14 and 19 through 57, comprising:

a first step during which said tray seating said cartridge is loaded into said main unit by said driving means unit;

a second step during which a positioning member positions said cartridge as it is loaded into said main unit;

a third step during which state detecting means detects the state of said cartridge;

a fourth step during which said disk is held by ~~means of~~ cooperation of a disk rotating means unit and a disk clamp member; and

a fifth step during which said cartridge urging member urges said cartridge against said tray,

wherein after said second step and said third step are executed following said first step, said fourth step and said fifth step are executed.

59. (Withdrawn and Currently Amended) The loading method for the disk drive of claim 58, wherein said disk drive comprises:

a mount detecting means unit which detects that said cartridge is arranged at a right position on said tray with said tray ejected, and which outputs a detection signal; and

a controlling means control section which receives said detection signal and outputs an operation instruction to said driving means unit.

60. (Withdrawn and Currently Amended) The loading method for the disk drive of claim 59, wherein said disk drive comprises a detecting member which detects that said cartridge is arranged at a right position on said tray,

wherein said mount detecting means unit responds to a detecting operation performed by said detecting member.

61. (Withdrawn and Currently Amended) The loading method for the disk drive of claim 60, wherein said disk drive comprises a cartridge holding means unit which engages with said engagement receiving part of said cartridge in such a manner that said cartridge holding means unit can be freely detached, and which fixes and positions said cartridge to said tray, and

said cartridge holding means unit also serves as a detecting member.

62. (Withdrawn and Currently Amended) The loading method for the disk drive of claim 58, wherein said disk drive comprises:

a controlling means control section which controls said driving means unit based on a predetermined drive profile in which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray;

a detecting means section which detects the completion of loading and ejection by said driving means unit; and

a calculating means calculation section which measures a loading time and an ejection time of said disk by said driving means unit based on a result of the detection performed by said detecting means section, and

said controlling means control section changes at least one

of said speed and said elapsed time contained in said drive profile in accordance with a measured time obtained by said ~~calculating means~~ calculation section.